

subject, and a controversy had arisen among Russian entomologists, some of them being of the opinion that the larvæ remain during the winter in the upper frozen sheet of the soil, and are in a state of sleep, while others affirmed that they go deeper into the unfrozen soil, and eat there the roots of plants, but die completely if exposed to temperatures below the freezing point. The researches of MM. Varoshevsky and Sokoloff proved that these larvæ fell asleep when exposed to temperatures below zero, but immediately returned to life as soon as exposed to a warmer temperature. In the frozen soil, whose temperature was one degree below zero, they found plenty of larvæ of *Asilus*, *Elateridae*, *Heliothis dipsaceus*, and whole nests of ants with their larvæ. All returned to life when warmed. M. Byeletsky contributes a paper on the respiration of the gigantic Salamander, *Cryptobranchius japonicus*, Hoey, one metre long, and weighing four kilograms (several individuals of the same species measure, as is known, four feet, and weigh nine kilograms). Siebold had already observed the very long pauses between the breathings of this Salamander, sometimes lasting for half an hour. M. Byeletsky found that at a temperature of water about 15° Celsius, his Salamander remained without breathing sometimes for an hour and a half. In the air it breathed more often. M. W. Reinhard contributes an elaborate paper on the structure and development of freshwater Bryozoa. After a sketch of our present knowledge of the subject—up to the last works of Messrs. Nitsche, Hatschek, Hyatt, and Allmann—the author describes at length the structure of *Crystatella mucosa*, giving special attention to the development of the statoblasts, and the sexual multiplication of *Alcyonella fungosa*. The paper is accompanied by seven well-engraved plates.

#### THE HIBERNATION OF ALETIA XYLINA, SAY, IN THE UNITED STATES, A SETTLED FACT<sup>1</sup>

I HAVE already shown in previous remarks before the Association that there were various theories held by competent men, both entomologists and planters, as to the hibernation of this *Aletia* (the common Cotton Worm of the South), some believing that it hibernated in the chrysalis state, some that it survived in the moth state, while still others contended that it did not hibernate at all in the United States. I have always contended that the moth survives within the limits of the United States, and in this paper the fact of its hibernation, principally under the shelter of rank wire-grass, is established from observations and experiments made during the past winter and spring. The moth has been taken at Archer, Fla., during every winter month until the early part of March, when it began to disappear, but not until eggs were found deposited. The first brood of worms was found of all sizes during the latter part of the same month on ratoon cotton, while chrysalides and fresh moths were obtained during the early part of April.

The fact thus established has this important practical bearing: "Whereas upon the theory of animal invasion from some exotic country, there was no incentive to winter or spring work looking to the destruction of the moths, there is now every incentive to such action as will destroy it either by attracting it during mild winter weather by sweets, or by burning the grasses in which it shelters. It should also be a warning to cotton-growers to abandon the slovenly method of cultivation which leaves the old cotton-stalks standing either until the next crop is planted, or long after that event; for many planters have the habit of planting the seed in a furrow between the old row of stalks. The most careful recent researches all tend to confirm the belief that *Gossypium* is the only plant upon which the worm can feed, so that, in the light of the facts presented, there is all the greater incentive to that mode of culture which will prevent the growth of ratoon cotton, since it is very questionable whether the moth would survive long enough to perpetuate itself upon newly-sown cotton, except for the intervention of ratoon cotton."

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The following Boards of Electors have been thus constituted:—

Professorship of Anatomy: Professors Flower, P.Z.S., Allen  
<sup>1</sup> Abstract of a paper read at the Montreal meeting of the Am. Ass. Adv. Sc., by Dr. C. V. Riley.

Thomson, Paget, Huxley, A. Newton, Liveing, Dr. Michael Foster, and Mr. J. W. Clark.

Downing Professorship of Medicine: Sir G. Burrows, Bart., Drs. Farre, Lauder Brunton, R. Quain, Professors Paget, Liveing, Humphry, and Mr. Main.

Professorship of Pathology: Professors Burdon Sanderson, Latham, Humphry, Paget, Sir James Paget, Drs. Michael Foster, J. F. Payne, and W. H. Gaskell.

Professorship of Political Economy: Messrs. L. H. Courtney, M.P., A. Marshall, H. S. Foxwell, R. H. Inglis Palgrave, H. Sidgwick, V. H. Stanton, H. J. Roby, and Prof. James Stuart. Dr. Michael Foster is appointed an additional member of the Special Boards for Medicine, and for Biology and Geology.

Candidates for the Plumian Professorship must send in their names to the Vice-Chancellor on January 6; the election will take place on January 16.

A report has been issued recommending various modifications in the Previous and General Examinations; it, however, contains no indication of any approaching relief from examination in Greek, or of the introduction of French or German into the ordinary curriculum, or of any natural science subject. As the syndicate contains several names of scientific weight, this appears rather surprising.

#### SCIENTIFIC SERIALS

*Bulletins de la Société d'Anthropologie de Paris*, tome v. fasc. iii., 1882, contain the concluding part of M. G. D'Hercourt's "Ile de Sardaigne." In this paper the author considers at length the nature and presumed purpose of the massive conical structures known as *nuraghes*, of which there are upwards of 3000 on the island of Sardinia, generally on, or near the coast. Since Diodorus of Sicily, who ascribed their origin to Dedalus, they have been a puzzle to the learned. The author's remarks on the intelligence of the modern Sardi, notwithstanding that craniometrically they rank among the lowest European races, gave occasion to various discussions at subsequent meetings.—A communication from M. Beauregard in regard to a discovery, made last January by M. Crevaux, of an ancient city of the Incas, at 10 kilom. from Salta, in the Argentine Republic, whose geographical position the latter was engaged in determining at the time.—On the various races inhabiting French Cochinchina, by M. G. de Clanbry, who confirms the general view of the moral and social degradation of the Annamites. He draws attention to the slight distinctions perceptible between the men and women of these tribes in voice, length of hair, gait, features, &c., and supplies interesting details in regard to the local flora.—M. Topinard, in presenting to the Society Hölder's craniometer, based on geometric methods, described the craniometric and anthropometric instruments in use from Camper's time to our own.—On the merits of M. Beaumanoir's system of comparing the facial and cranial areas, by M. Corre.—A report by M. Deniker of the result of the official examinations for the Society, of an adult orang-outang, and a young female chimpanzee, recently brought to Paris. The latter, as in the case observed by Darwin, showed its temper like a petulant child, by pouting, kicking, grinding its teeth, and *shedding tears*.—A paper by M. Corre, on the craniometric relations of certain anthropomorphic apes.—Report by M. de Mortillet of the labours of the Commission appointed to examine and protect the megalithic monuments of France. By the efforts of the Commissioners the remains at Carnac have been secured from further demolition, and the Locmariaquer group, including in the so-called "Roi des Menhirs" the largest known monolith, has passed by purchase under the control of the State.—On the abnormal development of the teeth in a child's jaw, belonging to the Stone Age, and found at Erlen, near Colmar, by Dr. Collignon. The general dental system shows a low racial character, while the large permanent molars had come up before the milk teeth had been shed.—A communication by M. Hovelacque, on certain ethnographic survivals in Marne and Berry. In the former province it is deemed specially unlucky to use the horses of a deceased person till after his funeral; in the latter the hives must have a black ribbon attached to them while the family wears mourning, and to avert evil fortune from the house of a departed master, one of his nearest relatives must proclaim to the bees that their former owner is dead.—M. Chervin, on the census of the French people in 1881. The author shows that the augmentation since 1876 has been only 20 per 1000 in France, while in England it was 145, and in Germany as much

as 574 per 1000! Maine and Normandy, notwithstanding their natural productiveness, are conspicuous for the regular diminution of their populations.—On a new form of sclerosis of the cerebral convolutions, by M. Pozzi, with special reference to the cerebral lesions common in insanity.—M. Duval's demand, in the name of a large number of his *confères*, for the foundation by the Society of an annual Darwinian Conference, was opposed by M. Mortillet in as far as the term Darwinian was concerned, which he proposes to replace by that of *transformist*, arguing that the adoption of the word "Darwinism" is an act of injustice to Lamarck, whose researches entitle him to be regarded as the father of transformism. The question has been referred to the Central Committee.—M. Topinard's explanation of the funereal objects collected in the Philippines by M. Marché's mission.—A discussion on the project for a general manual of ethnographic questions, as drawn up by M. Letourneau for the Society. The plan followed, which is that adopted by the Florentine Society of Anthropology, is criticised at great length by M. Dally, who strongly objects to the phraseology and definitions employed in the questions, and in consequence of his objections M. Letourneau's proposed "Questionnaire" has been referred to a special commission for further consideration.

## SOCIETIES AND ACADEMIES

### LONDON

**Royal Society, December 14.**—Note on a discovery, as yet unpublished, by the late Prof. F. M. Balfour, concerning the existence of a Blastopore, and on the origin of the Mesoblast in the embryo of *Peripatus capensis*, by Prof. Moseley, F.R.S., and Adam Sedgwick, M.A., Fellow of Trinity College, Cambridge.

The late Professor Balfour was just before his death engaged on the preparation of a monograph on the anatomy and development of the members of the genus *Peripatus*, together with an account of all known species. He left a series of notes, completed MSS., and drawings, which will be edited by the above authors, and issued shortly in the *Quarterly Journal of Microscopical Science*. His discoveries, however, concerning the early embryology of *P. capensis* are so remarkable that the above preliminary note has been communicated at once to the Royal Society.

The discovery is shortly as follows:—That a widely open slit-like blastopore is formed in the early oval embryo of *Peripatus*, which blastopore, occupying the median ventral line, becomes closed in its centre an anterior portion remaining open as the mouth, whilst a posterior portion apparently becomes the anus. The mesoblast is formed from the hypoblast at the lips of the blastopore, and makes its appearance as a series of paired hollow outgrowths from the cavity of the archenteron. This most primitive method of the formation of the mesoblastic somites closely similar to that occurring in *Amphioxus* and other ancestral forms, is of the greatest morphological significance, and it is especially interesting to find that it survives in an entirely unmodified condition in *Peripatus*, the adult organisation of which proves that it is a representative of an animal stock of the most remote antiquity.

Mr. Sedgwick, by examining some embryos in Prof. Balfour's collection of material as yet uninvestigated, has been able to confirm his results, and also by finding earlier stages to verify certain points in the developmental history which rested at the stage at which Prof. Balfour's inquiry ceased, mainly on inference. A discussion took place, in which Prof. Huxley, Prof. Lankester, and Mr. A. Sedgwick took part. The latter pointed out the close resemblance of the early embryo *Peripatus* with open blastopore to an actinia, the mesoblastic pouches corresponding to intermesenteric cavities, and the blastopore to the mouth, and urged that the discovery tended to confirm Prof. Balfour's published theory as to the origin of the bilateria from the elongation transversely of a disc-like ancestor, the ventral nerve-cords having been formed by the pulling out into long loops of a circum-oral ring.

Prof. Lankester expressed his opinion that the view that the blastopore represented a structure, which in an ancestral form acted as a mouth, must be abandoned. The blastopore is very probably merely an aperture necessarily formed in the process of production of the hypoblast by invagination, and has never had any special function. Prof. Huxley pointed out the essential differ-

ence between the peripheral nerve ring of *Hydromedusæ* and a true circumoral nerve ring.

**Geological Society, December 6.**—J. W. Hulke, F.R.S., president, in the chair.—Charles Bird, Enoch Cartwright, Henry Eunson, William Johnstone, Henry Liversidge, Henry George Lyons, Joseph Mawson, Horace W. Monckton, Henry Alexander Miers, John Postlethwaite, and Thomas Viccars, were elected Fellows of the Society.—The following communications were read:—Note on a Wealden fern, *Oleandridium (Tæniopteris) Beyrichii*, Schenk, new to Britain, by John E. H. Peyton, F.G.S.—On the mechanics of glaciers, more especially with relation to their supposed power of excavation, by the Rev. A. Irving, F.G.S. Generally, the author concluded, from mechanical and physical considerations, that far too much *erosive* power has been attributed by some writers to glaciers, and that it is doubtful if the work of actual excavation has been accomplished by them at all. The differential movement of glaciers he attributed to three causes: (1) cracking and regelation (Tyndall and Helmholtz); (2) generation of heat by friction within the glacier (Helmholtz); (3) the penetration of the glacier by *luminous solar energy*, the absorption of this by opaque bodies contained in the ice (stones, earth, organic germs, &c.), and the transformation of it in this way into heat. To this last he attributed the greater differential movement of the glacier (a) by day than by night, (b) in summer than in winter.

**Physical Society, December 9.**—Prof. Clifton, president, in the chair.—New members: Mr. H. E. Harrison, B.Sc., Mr. S. T. H. Saunders, M.A.—Prof. G. Forbes read a paper on the velocity of light of different colours. The author concluded from his experiments described to the Society a year ago, that blue rays travel quicker than red rays. M. Cornu had endeavoured to explain this result by peculiarities of the apparatus employed; but this explanation seemed doubtful. It was suggested that the experiments might be repeated with such modifications of the apparatus as would set the question at rest.—Professors Ayrton and Perry read a paper on the resistance of the voltaic arc, or the opposition electromotive forces set up. The electromotive force was measured by a voltmeter connected between the terminals of the lamp. Keeping the width of arc constant the E.M.F. was found to diminish as the current increased. Keeping the current constant, the E.M.F. increased rapidly, at first with an increasing width of arc, and afterwards more slowly. The authors gave a curve representing the change. About 80 volts are required to produce an arc of one-third of an inch. For further increase of arc E.M.F. is therefore proportional to increase of length of arc. The authors also read a paper on the relative intensities of the magnetic field produced by electromagnets when the current, iron core, and length of wire, &c., are constant, but the wire differently distributed. In a case the wire was wound uniformly from end to end; in b case it was wound from the middle to one end; in c case it was wound only at both ends; in d case it was wound only at one end. The field was measured along a line running through the axis of the poles beyond the magnet of the above plans; a gave the strongest field, except at short distances, when b was best.—Professors Ayrton and Perry also exhibited a set of three Faure accumulators in series feeding twenty Swan lamps, each lamp giving over 1 candle power. The electromotive force of each cell was about 2 volts.

**Anthropological Institute, December 12.**—Mr. M. J. Whithouse, F.R.A.S., in the chair.—Mr. A. L. Lewis exhibited some Neolithic flint implements and flakes found by him at Cape Blanc Nez, near Calais.—A paper by Mr. A. W. Howitt, F.G.S., on the Australian class systems, was read, in which the author discussed and explained the various rules with respect to marriage adopted by several of the native tribes.

### SYDNEY

**Linnean Society of New South Wales, September 27.**—Dr. James C. Cox, F.L.S., &c., in the chair.—The following papers were read:—On a resinous plant from the interior, by K. H. Bennett. Specimens of the gum or resin of this plant, which Mr. Bennett described as *Myoporum platycarpum*, R. Br., were exhibited.—On three new fishes from Queensland, by Charles W. De Vis, B.A. This paper was a description of a new genus of the family Berycidae, and a species of *Homalagrystes* and *Scolopsis*.—Contribution to a knowledge of the fishes of New Guinea, No. 2, by William Macleay, F.L.S., &c. This is a continuation of a list of the fishes found at Port Moresby by